A Further Study of the Validity of the Hoffer-Osmond Diagnostic Test

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The Hoffer-Osmond Diagnostic Test (HOD), which purports to measure perceptual, thought and mood disturbances, has been found to differentiate between schizophrenic and nonschizophrenic individuals (Hoffer, Kelm 8c Osmond, 1975; Kelm, Hoffer & Osmond, 1981). The majority of schizophrenic patients obtain high scores (above established cut-off points), while most nonschizophrenics have low scores (below these cut-off levels). However, a minority of schizophrenics score low on the Test and some nonschizophrenics obtain high scores. This fact can be interpreted as a weakness in the Test, and has prompted some investigators to question the validity of the HOD (Stewart & Mahood, 1963; Task Force, 1973).

In a more recent study however, it was found that using a relatively accurate laboratory measure of perceptual distortion (the visual figural aftereffect or VFA), high HOD scoring schizophrenic patients had different perceptual styles than low scorers, and it was suggested that these two groups would probably require different therapies (Kelm, 1981). Thus instead of weakness in the Test, the differentiation the HOD was making in perceptual styles within this broad diagnostic group was regarded as a strength, and viewed as enhancing the validity of the HOD.

A further test of the validity of the HOD could include a study of normal individuals, to determine if high HOD scorers also have different perceptual styles than low scorers, as found in the psychiatric group. It is therefore predicted that those with high scores will have different magnitudes of figural distortion or displacement than those with low scores. Also, secondly, high scorers will display a stimulus-governed VFA as found in high scoring schizophrenic patients (Kelm, 1981). The purpose of the present study is to test these predictions.

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Method

To measure the VFA an individual is asked to fixate on a figure (inspection-figure) for a period of time (called inspection-time); it is removed and replaced by another figure (test-figure). The S is then asked to make a number of judgements of this figure over a period of time (called test-time). Phenomenally, the test-figure appears distorted, and the magnitude of this distortion may be measured as a function of increasing stimulation with repeated exposures of the test-figure (test-time).

Subjects

A total of 30 university students who were not on any medication volunteered for this study. Since an earlier investigation (Kelm, unpubl.) had found that only women in the second and third quadrants of their menstrual cycle had VFAs not significantly different than males, only those in these two quadrants of their cycle (the beginning of the first quadrant being the start of menstruation) were tested in this study.

The 30 students were divided into two groups: Group 1 with Short Form (SF) HOD scores of 0 to 2, and Group 2 with SF scores of 3 and higher. Group 1 consisted of seven females and seven males with a median age of 21; Group 2 included six females and ten males having a median age of 20.

Apparatus and Procedure

The apparatus was similar to the one used in the earlier study of schizophrenic patients (Kelm, 1981). The inspection and test-figures were different, although the critical variables, namely the distance between

the inspection and test-figures and inspection times, were chosen in both studies to yield optimal VFAs.

The procedure for measuring the VFA was similar to the one used in the 1981 study, except that the test-time was extended since earlier studies had shown that to produce a stimulus-governed VFA in normal subjects required a longer test-time than in schizophrenic patients (Pry-siazniuk & Kelm, 1965; Kelm, 1962, 1968). Thus, following 30 sees, fixation of the inspection-figure, test alignments were made at the following times: immediately, 25, 50, 75, 100 and 125 secs. The Short Form of the HOD, consisting of the 17 statements printed on a sheet of paper, was administered to each student following the measurement of the VFA.

Results

The VFAs were averaged at the immediate and 25 secs., 50 and 75 secs, and 100 and 125 secs, test-times. These three VFAs, as a function of test-time, are shown in Figure 1 for those students with SF scores of 0-2 (Group 1) and 3 and higher (Group 2). Negativevalues indicate that the phenomenal inspection-test figure distance was less than in the control condition (called reducing); positive values indicate a phenomenal distance greater than the control condition (augmenting). A summary of an analysis of variance is given in Table 1. This analysis shows that students separated on the basis of SF scores have significantly different magnitudes of distortion ($F = 8.792$, 1 and 28 df, $P < .01$). It also shows that the VFA changes as a function of test-time, which is the usual expected phenomenon ($F = 19.068$, 2 and 56 df, $P < .001$). The statistically significant interaction ($F = 8.939$, 2 and 56 df, $P < .001$) indicates that the two groups differ in the rate of change of phenomenal size or distance as a function of test-time.

Discussion

The above results show that students separated into two groups by the SF score of the HOD have significantly different magnitudes of figural displacement, which supports the first prediction. The second

Figure 1. Visual figural displacement in students with SF scores of 0-2 and 3 and above as a function of test-time.

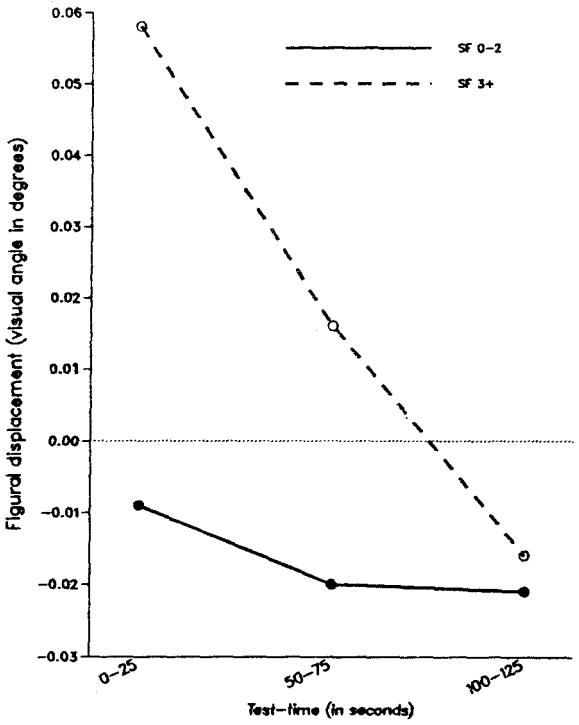

Table 1. Summary of Analysis of Variance for the High and Low HOD-Scoring Students with Three Test-Times

SOURCE	SS	df	MS	F
A: (HOD scores)	0.02914	1	0.02914	8.792*
Error (a)	0.09280	28	0.00331	
B : (Test-time)	0.03135	2	0.01567	19.068**
AxB	0.01470	2	0.00735	8.939**
Error (b)	0.04603	56	0.00082	
Total	0.21402	89		

*p<.01;**p<.001

prediction that normal subjects who score comparatively high on the HOD should be characterized by a stimulus-governed VFA was also confirmed. According to Petrie (1978), individuals with stimulus-governed VFAs are experiencing an "unpredictably expanding and contracting sensory environment" (p. 78), or more generally, suffer from a lack of "perceptual homeostasis" (p. 75).

These findings in a sample of university students are essentially the same as those found in schizophrenic patients, namely, that those in both groups with low HOD scores have different magnitudes of figural distortion than high scorers, and both groups with high HOD scores display a stimulus-governed VFA. As was pointed out elsewhere (Hoffer, Kelm & Osmond, 1975), individuals with high HOD scores may be regarded as being in a state of over-stimulation in which their brains are receiving too much input and are unable to maintain perceptual stability.

It should be noted that although both groups with high HOD scores showed a stimulus-governed VFA, the students required more stimulation (longer test-time) than schizophrenics to produce this phenomenon. This is in agreement with earlier studies which have shown that a stimulus-governed phenomenon in schizophrenic patients was induced with less stimulation (shorter test-time) than in normal individuals (Prysiazniuk & Kelm, 1965; Kelm, 1962, 1968). Also, SF scores above 4 were classified as high scores for schizophrenics (Kelm, 1981), compared with SF scores above 2 for students in the present study. Further, the norms of the HOD show that schizophrenic patients who score above these cut-off points have higher scores than students who obtain scores above these cut-off levels (Kelm, Hoffer & Osmond, 1981, Table X, p. 23). Thus, the SF of the HOD and VFA have identified within both schizophrenic patients and normal individuals those with a particular perceptual style who may be in a state of over-stimulation. Both tests tend to indicate that the level of stimulation in the student group is not as high as in schizophrenic patients. Therefore a reduction in stimulation, such as a less, stimulating environment or fewer demands placed upon them, for example, may be sufficient to stabilize the perceptual world of the student group. Whereas those schizophrenics with higher HOD scores, and in whom less stimulation induces unstable perceptions (a stimulus-governed VFA) may require not only strategies to reduce over-stimulation, but also additional interventions or therapy designed to achieve perceptual stability.

Conclusions

Rather than regarding low HOD scores in schizophrenic patients and high scores in nonschizophrenic individuals as a weakness of the Test, and questioning the validity of the HOD (Stewart & Mahood, 1963; Task Force, 1973), the present and earlier (Kelm, 1981) studies indicate that the HOD is making a meaningful discrimination within these groups. This has implications for the nature and extent of therapeutic intervention that may be required. Thus, the separation the HOD is making within these groups, which is supported by a relatively accurate laboratory measure, can be regarded as enhancing the validity and usefulness of the Hoffer-Osmond Diagnostic Test.

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References

1. Hoffer A, Kelm H & Osmond H (Eds.): *Clinical and Other Uses of the Hoffer-Osmond Diagnostic Test.* Krieger Publ. Co., Huntington, N.Y. 1975.
2. Kelm H: The Figural Aftereffect in Schizophrenic Patients. *Journal of Nervous and Mental Disease* 135, 338-345, 1962.
3. Kelm H: Visual Figural Aftereffect in Schizophrenic and Nonschizophrenic Patients. *Journal of Abnormal Psychology* 73, 273-275, 1968.
4. Kelm H: Figural Aftereffects and Validity of the Hoffer-Osmond Diagnostic Test. *Journal of Orthomolecular Psychiatry* 10, 93-97, 1981.
5. Kelm H, Hoffer A & Osmond H: *Revised Hof fer-Osmond Diagnostic Test Manual.* Behavior Science Press, University, Albania. 1981.
6. Petrie A: *Individuality in Pain and Suffering.* University of Chicago Press, Chicago, 111. 1978.

7. Prysiazniuk AW & Kelm H: Counter Displacement in the Visual Figural Aftereffect. *Quarterly Journal of Experimental Psychology* 17, 69-74, 1965.
8. Stewart CN fc Mahood MC: A Multiple Group Comparison of Scores on the Hoffer-Osmond Diagnostic Test. *Canadian Psychiatric Association Journal* 8, 133-137, 1963. 9. Task Force Report 7: *Megavitamin and Orthomolecular Therapy in Psychiatry*. American Psychiatric Association, Washington, D.C. 1973.